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February 25, 2020

Ms. Pamela Tames
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Project: EPA Region 2, RAC2 Contract No.: EP-W-09-002
Work Assignment No.: 060-RICO-02MV

Document No.: 3323-060-04126

Subject: Remedial Investigation Screening Criteria
Pierson's Creek Site OU1
Newark, New Jersey

Dear Ms. Tames:

CDM Smith is herein providing our approach to developing screening criteria we expect to employ to delineate the extent of contamination under the Remedial Investigations (RI) performed at Pierson's Creek OU1, New Jersey. The screening criteria logic presented here is specific to the RI stage of the project and may differ from screening criteria used for other project stages (e.g., identification of detections limits for the performance of risk assessments).

The approach to develop these New Jersey-specific screening criteria is described below. More complete references for the values, including websites, are provided in the footnotes to the screening criteria tables.

Analytes Included in the Screening Criteria Tables

All Target Compound List and Target Analyte List (TCL/TAL) chemicals are included in the tables, consistent with those chemicals listed in the EPA Contract Laboratory Program Statement of Work for Organic Superfund Methods (SOM02.4, October 2016) and Inorganic Superfund Methods (ISM02.4, October 2016). In addition, the following chemicals are included:

- 2,3,7,8-tetrachlorodibenzo-p-dioxin
- Chromium (hexavalent)

In addition, 1,4-dioxane can be included in either VOC or SVOC analytical methods. The screening criteria for 1,4-dioxane are presented with the SVOCs in the screening criteria tables.

Site Specific Considerations

The physical nature and use of the various portions of the site must be taken into consideration when selecting screening criteria. Below is a list of those considerations and how they impacted selection of screening criteria at the site.



- Saline vs. Non-Saline Environment - the nature of the surface water environment determines which surface water and sediment criteria are applicable. In Pierson's Creek it was determined through monitoring that the tides do impact the entire portion of the creek that is part of this investigation. The surface water salinity is above 3.5 ppt at mean high tide throughout the creek and it is therefore considered a saline environment.
- Residential vs. Non-Residential Soil Exposures - due to the current and expected future industrial/commercial use of each of the properties adjacent to Pierson's Creek the non-residential soil standards and criteria were selected in lieu of a residential exposure based standard or criteria.

Aqueous Screening Criteria (**Tables 1a through 1e**)

Groundwater:

1. Identification of the applicable standards or guidance values.
 - New Jersey Drinking Water Standards, September 2018.
 - EPA National Primary Drinking Water Regulations (40 CFR 141, as summarized in EPA 822-F-18-001, March 2018).
 - New Jersey Ground Water Quality Standards (N.J.A.C. 7:9C, January 2018).
 - New Jersey Interim Ground Water Quality Standards (N.J.A.C 7:9C, January 2018).
 - EPA Regional Screening Levels (RSLs) for tapwater, November 2019, based on a cancer risk of 1×10^{-6} and a hazard quotient of 1. The lower value of the RSLs derived from cancer versus noncancer endpoints is selected.
2. Establish selection logic.
 - The screening value is based on the lowest value available from the first four sources (i.e., New Jersey drinking water or groundwater standards or the EPA national primary drinking water regulations). If no values are available from those sources, use the EPA RSL for tapwater.

Surface Water (saline water):

1. Identification of the applicable standards or guidance values. The nature of the surface water environment determines which criteria are applicable.
 - Ecological Screening Levels -The screening levels are determined using the following hierarchical approach:
 - a. New Jersey Ecological Screening Criteria Table: Saline Water Aquatic Chronic Criteria (March 2009).
 - b. EPA Region 3 Biological Technical Assistance Group (BTAG) Marine Screening Benchmarks (July 2006).
 - c. National Recommended Water Quality Criteria: Aquatic Life Criteria Table, salt water chronic (downloaded January 2020).
 - Human Health Screening Levels - The screening levels are the lowest of the following:
 - d. New Jersey Surface Water Quality Standards: Human Health Criteria for saline water (N.J.A.C. 7:9b, re-adopted October 2016).
 - e. National Recommended Water Quality Criteria: Human Health Criteria Table, consumption of organism only (downloaded May 2018).



2. Establish selection logic.
 - The screening value is the lower value of the ecological screening level or the human health screening level.

Solids Screening Criteria (**Tables 2a through 2e**)

Soil:

1. Identification of the applicable standards or guidance values.
 - Human Health Screening Levels
 - a. New Jersey Remediation Standards – Non-Residential Direct Contact Soil Remediation Standards (N.J.A.C. 7:26D, last amended September 18, 2017).
 - b. EPA RSLs for soil protective of groundwater, November 2019, based on MCLs from the National Primary Drinking Water Regulations, where available, and a dilution factor of 20. Otherwise based on the RSL for tapwater (cancer risk of 1×10^{-6} and a hazard quotient of 1) and a dilution factor of 20.
 - c. EPA RSLs for industrial soil, November 2019, based on a cancer risk of 1×10^{-6} and a hazard quotient of 1. The lower value of the RSLs derived from cancer versus noncancer endpoints is selected.
 - Ecological Screening Levels determined using the following hierarchical approach:
 - a. NJDEP Ecological Screening Criteria for soil, March 2009. NJDEP presents six types of ecological screening criteria for soil; the lowest value among the six was used.
 - b. EPA Ecological Soil Screening Levels (<https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents>).
 - c. Oak Ridge National Laboratory, Preliminary Remediation Goals for Ecological Endpoints (Efroymson et al. 1997)
 - d. EPA Region 5 Resource Conservation and Recovery Act Ecological Screening Levels (2003).
2. Establish selection logic.
 - The screening value is based on the New Jersey Remediation Standard if available, then on the lower value of the EPA RSLs for soil protective of groundwater or industrial soil, then on the ecological screening level.

Sediment (saline water):

1. Identification of the applicable standards or guidance values.
 - Ecological Screening Level determined using the following hierarchical approach:
 - a. The NJDEP Ecological Screening Criteria (Lowest Effect Levels [LELs] for saline water sediment) (March 2009)
 - b. EPA Region 3 Biological Technical Assistance Group (BTAG) Marine Sediment Screening Benchmarks (July 2006).
 - Human Health Screening Level: EPA RSLs (November 2019) for industrial soil, based on a cancer risk of 1×10^{-6} and a hazard quotient of 1.
2. Establish selection logic.
 - The screening value is based on the ecological screening level, and then on the human health screening level if no ecological screening level was available.





Ms. Tames
February 25, 2020
Page 4

The resultant New Jersey-specific groundwater, soil, surface water, and sediment screening criteria for VOCs, SVOCs, pesticides, PCBs, dioxins/furans, and inorganics are provided in the highlighted columns of attached **Tables 1 and 2**.

If you have any questions regarding this letter, please contact me at your earliest convenience at (212) 377-4389.

Very truly yours,

CDM FEDERAL PROGRAMS CORPORATION

A handwritten signature in black ink that appears to read "Edward L. Leonard".

Edward L. Leonard, CHMM
Site Manager

PSO: KS

Enclosure

cc: H. Eng, EPA Region 2 (Letter Only)
 L. Smith, EPA Region 2
 RAC2 Region 2 Document Control

K. Subramaniam CDM Smith (Letter Only)
K. Carpenter, CDM Smith
J. Button, CDM Smith



Table 1a
Aqueous Screening Criteria - Volatile Organic Compounds
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: µg/L)	CAS Number	Sample Matrix: Groundwater						Sample Matrix: Saline Surface Water							
		New Jersey Drinking Water Standards	EPA National Primary Drinking Water Standards	NJDEP Ground Water Quality Standards	NJDEP Interim Ground Water Quality Standards	EPA RSL for Tapwater	Groundwater Criteria ¹	NJDEP Ecological Screening Criteria (Saline Chronic)	EPA Region 3 Marine Screening Benchmarks	National Recommended Water Quality Criteria (Saltwater Aquatic Life)	Ecological Screening Criteria for Saline Surface Water	NJDEP Surface Water Quality Criteria for Saline Water	National Recommended Water Quality Criteria (Human Health)	Human Health Screening Criteria for Surface Water	Surface Water Criteria ²
1,1,1-Trichloroethane	71-55-6	30	200	30	NL	8,000	30	NL	312	NL	312	2,600	200,000	2,600	312
1,1,2,2-Tetrachloroethane	79-34-5	1	NL	1	NL	0.08	1	NL	90.2	NL	90	110	3	3	3
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	NL	NL	20,000	NL	10,000	20,000	NL	NL	NL	NL	NL	NL	NL	NL
1,1,2-Trichloroethane	79-00-5	3	5	3	NL	0.28	3	NL	550	NL	550	350	8.9	8.9	8.9
1,1-Dichloroethane	75-34-3	50	NL	50	NL	2.8	50	NL	NL	NL	NL	NL	NL	NL	NL
1,1-Dichloroethene	75-35-4	2	7	1	NL	280	1	NL	2,240	NL	2,240	100	20,000	100	100
1,2,3-Trichlorobenzene	87-61-6	NL	NL	NL	NL	7	7	NL	NL	NL	NL	NL	NL	NL	NL
1,2,4-Trichlorobenzene	120-82-1	9	70	9	NL	1.2	9	NL	5.4	NL	5	42	0.076	0.076	0.076
1,2-Dibromo-3-chloropropane	96-12-8	80 c	NL	0.02	NL	0.00033	0.02	NL	NL	NL	NL	NL	NL	NL	NL
1,2-Dibromoethane	106-93-4	0.05	0.05	0.03	NL	0.01	0.03	NL	NL	NL	NL	NL	NL	NL	NL
1,2-Dichlorobenzene	95-50-1	600	600	600	NL	300	600	NL	42	NL	42	6,200	3,000	3,000	42
1,2-Dichloroethane	107-06-2	2	5	2	NL	0.17	2	NL	1,130	NL	1,130	28	650	28	28
1,2-Dichloroethene, cis-	156-59-2	70	70	70	NL	36	70	NL	NL	NL	NL	NL	NL	NL	NL
1,2-Dichloroethene, trans-	156-60-5	100	100	100	NL	360	100	NL	NL	NL	NL	43,000	4,000	4,000	4,000
1,2-Dichloropropane	78-87-5	5	5	1	NL	0.85	1	NL	2,400	NL	2,400	15	31	15	15
1,3-Dichlorobenzene	541-73-1	600	NL	600	NL	NL	600	NL	28.5	NL	29	8,300	10	10	10
1,3-Dichloropropene, cis-	10061-01-5	NL	NL	1 a	NL	0.47 a	1	NL	7.9 a	NL	7.9	21 a	12 a	12	7.9
1,3-Dichloropropene, trans-	10061-02-6	NL	NL	1 a	NL	0.47 a	1	NL	7.9 a	NL	7.9	21 a	12 a	12	7.9
1,4-Dichlorobenzene	106-46-7	75	75	75	NL	0.48	75	NL	19.9	NL	19.9	2,200	900	900	19.9
2-Butanone	78-93-3	NL	NL	300	NL	5,600	300	NL	NL	NL	NL	NL	NL	NL	NL
2-Hexanone	591-78-6	NL	NL	40	NL	38	40	NL	NL	NL	NL	NL	NL	NL	NL
4-Methyl-2-pentanone	108-10-1	NL	NL	NL	NL	6,300	6,300	NL	123,000	NL	123,000	NL	NL	NL	123,000
Acetone	67-64-1	NL	NL	6,000	NL	14,000	6,000	NL	564,000	NL	564,000	NL	NL	NL	564,000
Benzene	71-43-2	1	5	1	NL	0.46	1	NL	110	NL	110	3.3	NL	3.3	3.3
Bromochloromethane	74-97-5	NL	NL	NL	NL	83	83	NL	NL	NL	NL	NL	NL	NL	NL
Bromodichloromethane	75-27-4	80 c	80	1	NL	0.13	1	NL	NL	NL	NL	17	27	17	17
Bromoform	75-25-2	80 c	80	4	NL	3.3	4	NL	640	NL	640	140	120	120	120
Bromomethane	74-83-9	NL	NL	10	NL	7.5	10	NL	120	NL	120	1,500	10,000	1,500	120
Carbon Disulfide	75-15-0	NL	NL	700	NL	810	700	NL	NL	NL	NL	NL	NL	NL	NL
Carbon Tetrachloride	56-23-5	2	5	1	NL	0.46	1	NL	1,500	NL	1,500	2.3	5	2.3	2.3
Chlorobenzene	108-90-7	50	100	50	NL	78	50	NL	25	NL	25	2,500	800	800	25
Chloroethane	75-00-3	NL	NL	NL	5	21,000	5	NL	NL	NL	NL	NL	NL	NL	NL
Chloroform	67-66-3	80 c	80	70	NL	0.22	70	NL	815	NL	815	2,100	2,000	2,000	815

Table 1a
Aqueous Screening Criteria - Volatile Organic Compounds
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: µg/L)	CAS Number	Sample Matrix: Groundwater						Sample Matrix: Saline Surface Water							
		New Jersey Drinking Water Standards	EPA National Primary Drinking Water Standards	NJDEP Ground Water Quality Standards	NJDEP Interim Ground Water Quality Standards	EPA RSL for Tapwater	Groundwater Criteria ¹	Ecological Screening Criteria				Human Health Screening Criteria			
								NJDEP Ecological Screening Criteria (Saline Chronic)	EPA Region 3 Marine Screening Benchmarks	National Recommended Water Quality Criteria (Saltwater Aquatic Life)	Ecological Screening Criteria for Saline Surface Water	NJDEP Surface Water Quality Criteria for Saline Water	National Recommended Water Quality Criteria (Human Health)		
Chloromethane	74-87-3	NL	NL	NL	NL	190	190	NL	2,700	NL	2,700	NL	NL	NL	NL
Cyclohexane	110-82-7	NL	NL	NL	NL	13,000	13,000	NL	NL	NL	NL	NL	NL	NL	NL
Dibromochloromethane	124-48-1	NL	80	1	NL	0.87	1	NL	NL	NL	NL	13	21	13	13
Dichlorodifluoromethane	75-71-8	NL	NL	1,000	NL	200	1,000	NL	NL	NL	NL	NL	NL	NL	NL
Ethylbenzene	100-41-4	700	700	700	NL	1.5	700	NL	25	NL	25	2,100	130	130	25
Isopropylbenzene	98-82-8	NL	NL	700	NL	450	700	NL	NL	NL	NL	NL	NL	NL	NL
Methyl Acetate	79-20-9	NL	NL	7,000	NL	20,000	7,000	NL	NL	NL	NL	NL	NL	NL	NL
Methyl tert-Butyl Ether	1634-04-4	70	NL	70	NL	14	70	18000	NL	NL	18,000	NL	NL	NL	NL
Methylcyclohexane	108-87-2	NL	NL	NL	100	NL	100	NL	NL	NL	NL	NL	NL	NL	NL
Methylene Chloride	75-09-2	3	NL	3	NL	11	3	NL	2,560	NL	2,560	310	1,000	310	310
Styrene	100-42-5	100	100	100	NL	1,200	100	NL	910	NL	910	NL	NL	NL	910
Tetrachloroethene	127-18-4	1	5	1	NL	11	1	NL	45	NL	45	1.6	29	1.6	1.6
Toluene	108-88-3	1000	1,000	600	NL	1,100	600	NL	215	NL	215	15,000	520	520	215
Trichloroethene	79-01-6	1	5	1	NL	0.49	1	NL	1,940	NL	1,940	12	7	7	7
Trichlorofluoromethane	75-69-4	NL	NL	2,000	NL	5,200	2,000	NL	NL	NL	NL	NL	NL	NL	NL
Vinyl Chloride	75-01-4	2	2	1	NL	0.02	1	NL	NL	NL	NL	8.1	1.6	1.6	1.6
Xylene, m,p-	179601-23-1	1000	10,000	b	1,000	b	NL	190	d	1,000	19	b	NL	NL	19
Xylene, o-	95-47-6	1000	10,000	b	1,000	b	NL	190	1,000	NL	19	b	NL	NL	19

Notes:

1. Groundwater criteria were selected in a hierarchical fashion as follows:

(a) Lowest of the following:

(a-1) New Jersey Drinking Water Standards, September 2018 (<http://www.nj.gov/dep/standards/drinking%20water.pdf>), downloaded September 14, 2018.

(a-2) EPA National Primary Drinking Water Standards, 40 CFR 141 as summarized in EPA 822-F-18-001, March 2018. <https://www.epa.gov/dwstandardsregulations/2018-drinking-water-standards-and-advisory-tables>

(a-3) New Jersey Ground Water Quality Standards Class IIA (N.J.A.C. 7:9C), January 2018. (http://www.nj.gov/dep/wms/bears/Appendix_Table_1.htm#; downloaded 1/23/18)

(a-4) New Jersey Ground Water Quality Standard (N.J.A.C 7:9C), January 2018. (Interim Generic standard as listed in <http://www.nj.gov/dep/standards/ground%20water.pdf>; downloaded 1/25/18)

Synthetic organic chemicals lacking specific or interim specific criteria were assigned an interim generic standard value based on N.J.A.C. 7:9C: Appendix Table II.

(b) EPA Human health-based screening – RSL Tapwater (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.

(<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

Table 1a
Aqueous Screening Criteria - Volatile Organic Compounds
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: µg/L)	CAS Number	Sample Matrix: Groundwater					Sample Matrix: Saline Surface Water							
		New Jersey Drinking Water Standards	EPA National Primary Drinking Water Standards	NJDEP Ground Water Quality Standards	NJDEP Interim Ground Water Quality Standards	EPA RSL for Tapwater	Groundwater Criteria ¹	NJDEP Ecological Screening Criteria (Saline Chronic)	EPA Region 3 Marine Screening Benchmarks	National Recommended Water Quality Criteria (Saltwater Aquatic Life)	Ecological Screening Criteria for Saline Surface Water	NJDEP Surface Water Quality Criteria for Saline Water	National Recommended Water Quality Criteria (Human Health)	Human Health Screening Criteria for Surface Water

2. Surface Water criteria were selected from the lowest of:

(a) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(a-1) NJDEP Ecological Screening Criteria (Saline Water Aquatic Chronic), March 10, 2009
Accessed January 2020 (<http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

(a-2) EPA Region 3 Biological Technical Assistance Group Marine Screening Benchmarks, July 2006
Accessed January 2020 (https://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_marine_benchmarks_07-06.pdf)

(a-3) EPA National Recommended Aquatic Life Criteria table based on Saltwater CCC (chronic) values. If no chronic value available, criterion is based on acute value.
Accessed January 2020 (<http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>)

(b) Human health screening criteria which were selected from the lowest of the following:

(b-1) NJDEP Surface Water Quality Standards: Human Health Criteria for saline water, October 2016
Accessed January 2020 (http://www.nj.gov/dep/rules/rules/njac7_9b.pdf)

(b-2) EPA National Recommended Water Quality Criteria, Human Health for the consumption of organism only
Accessed May 2018 (<https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table>)

a: screening value for 1,3-dichloropropene

b: screening value for xylenes (total)

c: screening value for trihalomethanes, applies to total of the four trihalomethanes

d: screening value for m-xylene

CCC - criterion continuous concentration

µg/L - microgram per liter

NJDEP - New Jersey Department of Environmental Protection

NJ GWQC - New Jersey Groundwater Quality Criteria

NL - not listed or chemical name listed but no value available

RSL - regional screening level

VOC - volatile organic compound

Table 1b
Aqueous Screening Criteria - Semi-Volatile Organic Compounds
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: µg/L)	CAS Number	Sample Matrix: Groundwater						Sample Matrix: Saline Surface Water							
		New Jersey Drinking Water Standards (NJMCL)	EPA National Primary Drinking Water Standards	NJDEP Ground Water Quality Standards	NJDEP Interim Ground Water Quality Standards	EPA RSL for Tapwater	Groundwater Criteria ¹	NJDEP Ecological Screening Criteria (Saline Chronic)	EPA Region 3 Marine Screening Benchmarks	National Recommended Water Quality Criteria (Saltwater Aquatic Life)	Ecological Screening Criteria for Saline Surface Water	NJDEP Surface Water Quality Criteria for Saline Water	National Recommended Water Quality Criteria (Human Health)	Human Health Screening Criteria for Surface Water	Surface Water Criteria ²
1,1'-Biphenyl	92-52-4	NL	NL	400	NL	0.83	400	NL	NL	NL	NL	NL	NL	NL	NL
1,2,4,5-Tetrachlorobenzene	95-94-3	NL	NL	NL	NL	1.7	1.7	NL	129	NL	129	1.1	0.03	0.03	0.03
1,4-Dioxane	123-91-1	NL	NL	0.4	NL	0.46	0.4	NL	NL	NL	NL	NL	NL	NL	NL
2,2'-oxybis(1-Chloropropane)	108-60-1	NL	NL	300	NL	710	300	NL	NL	NL	NL	65,000	4,000	4,000	4,000
2,3,4,6-Tetrachlorophenol	58-90-2	NL	NL	200	NL	240	200	NL	NL	NL	NL	NL	NL	NL	NL
2,4,5-Trichlorophenol	95-95-4	NL	NL	700	NL	1,200	700	NL	12	NL	12	3,600	600	600	12
2,4,6-Trichlorophenol	88-06-2	NL	NL	20	NL	4.1	20	NL	61	NL	61	1	2.8	1	1
2,4-Dichlorophenol	120-83-2	NL	NL	20	NL	46	20	NL	NL	NL	NL	290	60	60	60
2,4-Dimethylphenol	105-67-9	NL	NL	100	NL	360	100	NL	NL	NL	NL	850	3,000	850	850
2,4-Dinitrophenol	51-28-5	NL	NL	40	NL	39	40	NL	48.5	NL	49	5,300	300	300	49
2,4-Dinitrotoluene	121-14-2	NL	NL	NL	NL	0.24	0.24	NL	NL	NL	NL	3.4	1.7	1.70	1.70
2,6-Dinitrotoluene	606-20-2	NL	NL	NL	NL	0.049	0.049	NL	NL	NL	NL	NL	NL	NL	NL
2-Chloronaphthalene	91-58-7	NL	NL	600	NL	750	600	NL	NL	NL	NL	1,600	1,000	1,000	1,000
2-Chlorophenol	95-57-8	NL	NL	40	NL	91	40	NL	265	NL	265	150	800	150	150
2-Methylnaphthalene	91-57-6	NL	NL	30	NL	36	30	NL	4.2	NL	4	NL	NL	NL	4
2-Methylphenol	95-48-7	NL	NL	50	NL	930	50	NL	1,020	NL	1,020	NL	NL	NL	1,020
2-Nitroaniline	88-74-4	NL	NL	NL	NL	190	190	NL	NL	NL	NL	NL	NL	NL	NL
2-Nitrophenol	88-75-5	NL	NL	NL	NL	100	NL	100	NL	2,940	NL	2,940	NL	NL	2,940
3,3'-Dichlorobenzidine	91-94-1	NL	NL	30	NL	0.13	30	NL	73	NL	73	0.028	0.15	0.028	0.028
3-Methylphenol	108-39-4	NL	NL	50	NL	930	50	NL	NL	NL	NL	NL	NL	NL	NL
3-Nitroaniline	99-09-2	NL	NL	NL	NL	100	NL	100	NL	NL	NL	NL	NL	NL	NL
4,6-Dinitro-2-methylphenol	534-52-1	NL	NL	0.7	NL	1.5	0.7	NL	NL	NL	NL	280	30	30	30
4-Bromophenyl-phenylether	101-55-3	NL	NL	100	NL	100	NL	NL	NL	NL	NL	NL	NL	NL	NL
4-Chloro-3-methylphenol	59-50-7	NL	NL	NL	NL	100	1,400	NL	NL	NL	NL	NL	2,000	2,000	2,000
4-Chloroaniline	106-47-8	NL	NL	30	NL	0.37	30	NL	NL	NL	NL	NL	NL	NL	NL
4-Chlorophenyl-phenyl ether	7005-72-3	NL	NL	NL	NL	100	NL	100	NL	NL	NL	NL	NL	NL	NL
4-Methylphenol	106-44-5	NL	NL	50	NL	1,900	50	NL	NL	NL	NL	NL	NL	NL	NL
4-Nitroaniline	100-01-6	NL	NL	NL	NL	3.8	3.8	NL	NL	NL	NL	NL	NL	NL	NL
4-Nitrophenol	100-02-7	NL	NL	NL	NL	100	NL	100	NL	71.7	NL	71.7	NL	NL	71.7
Acenaphthene	83-32-9	NL	NL	400	NL	530	400	NL	6.6	NL	6.6	990	90	90	6.6
Acenaphthylene	208-96-8	NL	NL	NL	NL	100	NL	100	NL	NL	NL	NL	NL	NL	NL
Acetophenone	98-86-2	NL	NL	700	NL	1,900	700	NL	NL	NL	NL	NL	NL	NL	NL
Anthracene	120-12-7	NL	NL	2,000	NL	1,800	2,000	NL	0.18	NL	0.18	40,000	400	400	0.18
Atrazine	1912-24-9	3	3	3	NL	0.3	3	NL	NL	NL	NL	NL	NL	NL	NL
Benzaldehyde	100-52-7	NL	NL	NL	NL	19	19	NL	NL	NL	NL	NL	NL	NL	NL
Benzo(a)anthracene	56-55-3	NL	NL	0.1	NL	0.03	0.1	NL	NL	NL	NL	0.18	0.0013	0.0013	0.0013
Benzo(a)pyrene	50-32-8	0.2	0.2	0.1	NL	0.025	0.1	NL	NL	NL	NL	0.018	0.00013	0.00013	0.00013
Benzo(b)fluoranthene	205-99-2	NL	NL	0.2	NL	0.25	0.2	NL	NL	NL	NL	0.18	0.0013	0.0013	0.0013
Benzo(g,h,i)perylene	191-24-2	NL	NL	NL	NL	100	NL	100	NL	NL	NL	NL	NL	NL	NL
Benzo(k)fluoranthene	207-08-9	NL	NL	0.5	NL	2.5	0.5	NL	NL	NL	NL	1.8	0.013	0.013	0.013
bis(2-Chloroethoxy) methane	111-91-1	NL	NL	NL	NL	59	59	NL	NL	NL	NL	NL	NL	NL	NL
bis(2-Chloroethyl) ether	111-44-4	NL	NL	7	NL	0.014	7	NL	NL	NL	NL	0.53	2.2	0.53	0.53
bis-(2-Ethylhexyl)phthalate	117-81-7	6	6	3	NL	5.6	3	NL	NL	NL	NL	2.2	0.37	0.37	0.37
Butylbenzylphthalate	85-68-7	NL	NL	100	NL	16	100	NL	29.4	NL	29.4	190	0.1	0.1	0.1
Caprolactam	105-60-2	NL	NL	4,000	NL	9,900	4,000	NL	NL	NL	NL	NL	NL	NL	NL
Carbazole	86-74-8	NL	NL	NL	NL	100	NL	100	NL	NL	NL	NL	NL	NL	NL
Chrysene	218-01-9	NL	NL	5	NL	25	5	NL	NL	NL	NL	18	0.13	0.13	0.13
Dibenzo(a,h)anthracene	53-70-3	NL	NL	0.3	NL	0.025	0.3	NL	NL	NL	NL	0.018	0.00013	0.00013	0.00013
Dibenzofuran	132-64-9	NL	NL	NL	NL	7.9	7.9	NL	65	NL	65	NL	NL	NL	65
Diethylphthalate	84-66-2	NL	NL	6,000	NL	15,000	6,000	NL	75.9	NL	75.9	44,000	600	600	76
Dimethylphthalate	131-11-3	NL	NL	NL	NL	100	NL	100	NL	580	NL	580	NL	2,000	2,000
Di-n-butylphthalate	84-74-2	NL	NL	700	NL	900	700	NL	3.4	NL	3.4	4,500	30	30	3.4
Di-n-octylphthalate	117-84-0	NL	NL	100	NL	200	100</td								

Table 1b
Aqueous Screening Criteria - Semi-Volatile Organic Compounds
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: µg/L)	CAS Number	Sample Matrix: Groundwater						Sample Matrix: Saline Surface Water							
		New Jersey Drinking Water Standards (NJMCL)	EPA National Primary Drinking Water Standards	NJDEP Ground Water Quality Standards	NJDEP Interim Ground Water Quality Standards	EPA RSL for Tapwater	Groundwater Criteria ¹	NJDEP Ecological Screening Criteria (Saline Chronic)	EPA Region 3 Marine Screening Benchmarks	National Recommended Water Quality Criteria (Saltwater Aquatic Life)	Ecological Screening Criteria for Saline Surface Water	NJDEP Surface Water Quality Criteria for Saline Water	National Recommended Water Quality Criteria (Human Health)	Human Health Screening Criteria for Surface Water	Surface Water Criteria ²
Fluorene	86-73-7	NL	NL	300	NL	290	300	NL	2.5	NL	2.5	5,300	70	70	3
Hexachlorobenzene	118-74-1	1	1	0.02	NL	0.0098	0.02	NL	NL	NL	NL	0.00029	0.000079	0.000079	0.000079
Hexachlorobutadiene	87-68-3	NL	NL	1	NL	0.14	1	NL	0.3	NL	0.3	18	0.01	0.01	0.01
Hexachlorocyclopentadiene	77-47-4	50	50	40	NL	0.41	40	NL	0.07	NL	0.07	1,100	4	4	0.07
Hexachloroethane	67-72-1	NL	NL	7	NL	0.33	7	NL	9.4	NL	9.4	3.3	0.1	0.1	0.1
Indeno(1,2,3-cd)pyrene	193-39-5	NL	NL	0.2	NL	0.25	0.2	NL	NL	NL	NL	0.18	0.0013	0.0013	0.0013
Isophorone	78-59-1	NL	NL	40	NL	78	40	NL	129	NL	129	960	1,800	960	129
Naphthalene	91-20-3	300	NL	300	NL	0.17	300	NL	1.4	NL	1.4	NL	NL	NL	1.4
Nitrobenzene	98-95-3	NL	NL	6	NL	0.14	6	NL	66.8	NL	66.8	690	600	600	67
N-Nitroso-di-n-propylamine	621-64-7	NL	NL	10	NL	0.011	10	NL	120	NL	120	0.51	0.51	0.51	0.51
N-Nitrosodiphenylamine	86-30-6	NL	NL	10	NL	12	10	NL	33,000	NL	33,000	6	6	6	6
Pentachlorophenol	87-86-5	1	1	0.3	NL	0.041	0.3	7.9	7.9	8	7.9	3	0.04	0.04	0.04
Phenanthrene	85-01-8	NL	NL	NL	100	NL	100	NL	1.5	NL	1.5	NL	NL	NL	1.5
Phenol	108-95-2	NL	NL	2,000	NL	5,800	2,000	NL	58	NL	58	860,000	300,000	300,000	58
Pyrene	129-00-0	NL	NL	200	NL	120	200	NL	0.24	NL	0.2	4,000	30	30	0.2

Notes:

1. Groundwater criteria were selected in a hierarchical fashion as follows:

(a) Lowest of the following:

(a-1) New Jersey Drinking Water Standards, September 2018 (<http://www.nj.gov/dep/standards/drinking%20water.pdf>), downloaded September 14, 2018.

(a-2) EPA National Primary Drinking Water Standards, 40 CFR 141 as summarized in EPA 822-F-18-001, March 2018. <https://www.epa.gov/dwstandardsregulations/2018-drinking-water-standards-and-advisory-tables>

(a-3) New Jersey Ground Water Quality Standards Class IIA (N.J.A.C. 7:9C), January 2018. (http://www.nj.gov/dep/wms/bears/Appendix_Table_1.htm#; downloaded 1/23/18)

(a-4) New Jersey Ground Water Quality Standard (N.J.A.C. 7:9C), January 2018. (Interim Generic standard as listed in <http://www.nj.gov/dep/standards/ground%20water.pdf>; downloaded 1/25/18)

Synthetic organic chemicals lacking specific or interim specific criteria were assigned an interim generic standard value based on N.J.A.C. 7:9C: Appendix Table II.

(b) EPA Human health-based screening – RSL Tapwater (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.

(<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

2. Surface Water criteria were selected from the lowest of:

(a) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(a-1) NJDEP Ecological Screening Criteria (Saline Water Aquatic Chronic), March 10, 2009

Accessed January 2020 (<http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

(a-2) EPA Region 3 Biological Technical Assistance Group Marine Screening Benchmarks, July 2006

Accessed January 2020 (https://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_marine_benchmarks_07-06.pdf)

(a-3) EPA National Recommended Aquatic Life Criteria table based on Saltwater CCC (chronic) values. If no chronic value available, criterion is based on acute value.

Accessed January 2020 (<http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>)

(b) Human health screening criteria which were selected from the lowest of the following:

(b-1) NJDEP Surface Water Quality Standards: Human Health Criteria for saline water, October 2016

Accessed January 2020 (http://www.nj.gov/dep/rules/rules/njac7_9b.pdf)

(b-2) EPA National Recommended Water Quality Criteria, Human Health for the consumption of organism only

Accessed May 2018 (<https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table>)

CCC - criterion continuous concentration

µg/L - microgram per liter

NJDEP - New Jersey Department of Environmental Protection

NJ GWQC - New Jersey Groundwater Quality Criteria

NL - not listed or chemical name listed but no value available

RSL - regional screening level

SVOC - semi-volatile organics

Table 1c
Aqueous Screening Criteria - Pesticides
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: µg/L)	CAS Number	Sample Matrix: Groundwater						Sample Matrix: Saline Surface Water								Surface Water Criteria ²
		New Jersey Drinking Water Standards (NJMCL)	EPA National Primary Drinking Water Standards	NJDEP Ground Water Quality Standards	NJDEP Interim Ground Water Quality Standards	EPA RSL for Tapwater	Groundwater Criteria ¹	NJDEP Ecological Screening Criteria (Saline Chronic)	EPA Region 3 Marine Screening Benchmarks	National Recommended Water Quality Criteria (Saltwater Aquatic Life)	Ecological Screening Criteria for Saline Surface Water	NJDEP Surface Water Quality Criteria for Saline Water	National Recommended Water Quality Criteria (Human Health)	Human Health Screening Criteria for Surface Water		
Pesticides																
4,4'-DDD	72-54-8	NL	NL	0.1	NL	0.032	0.1	NL	0.025	0.001 a	0.025	0.00031	0.00012	0.00012	0.00012	
4,4'-DDE	72-55-9	NL	NL	0.1	NL	0.046	0.1	NL	0.14	0.001 a	0.14	0.00022	0.000018	0.000018	0.000018	
4,4'-DDT	50-29-3	NL	NL	0.1	NL	0.23	0.1	0.001	0.0065	0.001	0.001	0.00022	0.00003	0.00003	0.00003	
Aldrin	309-00-2	NL	NL	0.04	NL	0.00092	0.04	1.3 d	0.13	NL	1.30	0.00005	0.00000077	0.00000077	0.00000077	
BHC, alpha	319-84-6	NL	NL	0.02	NL	0.0072	0.02	NL	25	NL	25	0.0049	0.00039	0.00039	0.00039	
BHC, beta	319-85-7	NL	NL	0.04	NL	0.025	0.04	NL	NL	NL	NL	0.017	0.014	0.014	0.014	
BHC, delta	319-86-8	NL	NL	NL	5	NL	5	NL	NL	NL	NL	NL	NL	NL	NL	
BHC, gamma (Lindane)	58-89-9	0.2	0.2	0.03	NL	0.042	0.03	0.16 d	0.016	NL	0.160	1.8	4.4	1.8	0.160	
Chlordane, alpha	5103-71-9	0.5 b	2 b	0.5 b	NL	0.020 b	0.5	0.004 b	NL	0.004 b	0.004	0.00011 b	0.00032 b	0.00011	0.00011	
Chlordane, gamma	5103-74-2	0.5 b	2 b	0.5 b	NL	0.020 b	0.5	0.004 b	NL	0.004 b	0.004	0.00011 b	0.00032 b	0.00011	0.00011	
Dieldrin	60-57-1	NL	NL	0.03	NL	0.0018	0.03	0.0019	0.11	0.0019	0.0019	0.000054	0.0000012	0.0000012	0.0000012	
Endosulfan I	959-98-8	NL	NL	40	NL	100 c	40	0.0087 c	0.001 c	0.0087	0.0087	89 c	30	30	0.0087	
Endosulfan II	33213-65-9	NL	NL	40	NL	100 c	40	0.0087 c	0.001 c	0.0087	0.0087	89 c	40	40	0.0087	
Endosulfan sulfate	1031-07-8	NL	NL	40	NL	110	40	NL	0.009	NL	0.009	89	40	40	0.009	
Endrin	72-20-8	2	2	2	NL	2.3	2	0.0023	0.01	0.0023	0.0023	0.06	0.03	0.03	0.0023	
Endrin aldehyde	7421-93-4	NL	NL	NL	100	NL	100	NL	NL	NL	NL	0.06	1	0.060	0.06	
Endrin ketone	53494-7-5	NL	NL	NL	100	NL	100	NL	NL	NL	NL	NL	NL	NL	NL	
Heptachlor	76-44-8	0.4	0.4	0.05	NL	0.0014	0.05	0.0036	NL	0.0036	0.0036	0.000079	0.0000059	0.0000059	0.0000059	
Heptachlor epoxide	1024-57-3	0.2	0.2	0.2	NL	0.0014	0.2	0.0036	NL	0.0036	0.0036	0.000039	0.000032	0.000032	0.000032	
Methoxychlor	72-43-5	40	40	40	NL	37	40	0.03	0.03	0.03	0.03	NL	0.02	0.02	0.02	
Toxaphene	8001-35-2	3	3	2	NL	0.071	2	0.0002	0.21	0.0002	0.0002	0.00028	0.00071	0.00028	0.0002	

Table 1c
Aqueous Screening Criteria - Pesticides
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Notes:

1. Groundwater criteria were selected in a hierarchical fashion as follows:

(a) Lowest of the following:

(a-1) New Jersey Drinking Water Standards, September 2018 (<http://www.nj.gov/dep/standards/drinking%20water.pdf>), downloaded September 14, 2018.

(a-2) EPA National Primary Drinking Water Standards, 40 CFR 141 as summarized in EPA 822-F-18-001, March 2018. <https://www.epa.gov/dwstandardsregulations/2018-drinking-water-standards-and-advisory-tables>

(a-3) New Jersey Ground Water Quality Standards Class IIA (N.J.A.C. 7:9C), January 2018. (http://www.nj.gov/dep/wms/bears/Appendix_Table_1.htm#; downloaded 1/23/18)

(a-4) New Jersey Ground Water Quality Standard (N.J.A.C 7:9C), January 2018. (Interim Generic standard as listed in <http://www.nj.gov/dep/standards/ground%20water.pdf>; downloaded 1/25/18)

Synthetic organic chemicals lacking specific or interim specific criteria were assigned an interim generic standard value based on N.J.A.C. 7:9C: Appendix Table II.

(b) EPA Human health-based screening – RSL Tapwater (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.

(<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

2. Surface Water criteria were selected from the lowest of:

(a) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(a-1) NJDEP Ecological Screening Criteria (Saline Water Aquatic Chronic), March 10, 2009
Accessed January 2020 (<http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

(a-2) EPA Region 3 Biological Technical Assistance Group Marine Screening Benchmarks, July 2006
Accessed January 2020 (https://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_marine_benchmarks_07-06.pdf)

(a-3) EPA National Recommended Aquatic Life Criteria table based on Saltwater CCC (chronic) values. If no chronic value available, criterion is based on acute value.
Accessed January 2020 (<http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>)

(b) Human health screening criteria which were selected from the lowest of the following:

(b-1) NJDEP Surface Water Quality Standards: Human Health Criteria for saline water, October 2016
Accessed January 2020 (http://www.nj.gov/dep/rules/rules/njac7_9b.pdf)

(b-2) EPA National Recommended Water Quality Criteria, Human Health for the consumption of organism only
Accessed May 2018 (<https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table>)

a: screening value for 4,4'-DDT

b: screening value for chlordane

c: screening value for endosulfans (alpha and beta)

d: NJDEP acute value used because no chronic value available.

CCC - criterion continuous concentration

µg/L - microgram per liter

NL - not listed or chemical name listed but no value available

NJDEP - New Jersey Department of Environmental Protection

NJ GWQC - New Jersey Groundwater Quality Criteria

RSL - regional screening level

Table 1d
Aqueous Screening Criteria - Polychlorinated Biphenyls and Dioxins/Furans
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte	CAS Number	Sample Matrix: Groundwater						Sample Matrix: Saline Surface Water								Surface Water Criteria ²	
		New Jersey Drinking Water Standards (NJMCL)	EPA National Primary Drinking Water Standards	NJDEP Ground Water Quality Standards	NJDEP Interim Ground Water Quality Standards	EPA RSL for Tapwater	Groundwater Criteria ¹	Ecological Screening Criteria				Human Health Screening Criteria					
								NJDEP Ecological Screening Criteria (Saline Chronic)	EPA Region 3 Marine Screening Benchmarks	National Recommended Water Quality Criteria (Saltwater Aquatic Life)	Ecological Screening Criteria for Saline Surface Water	NJDEP Surface Water Quality Criteria for Saline Water	National Recommended Water Quality Criteria (Human Health)	Human Health Screening Criteria for Surface Water			
Polychlorinated Biphenyls (µg/L)																	
Aroclor-1016	12674-11-2	0.5 a	0.5 a	0.5 a	NL	0.22	0.5	0.03 a	NL	0.03 a	0.030	0.000064 a	0.000064 a	0.000064	0.000064		
Aroclor-1221	11104-28-2	0.5 a	0.5 a	0.5 a	NL	0.0047	0.5	0.03 a	NL	0.03 a	0.030	0.000064 a	0.000064 a	0.000064	0.000064		
Aroclor-1232	11141-16-5	0.5 a	0.5 a	0.5 a	NL	0.0047	0.5	0.03 a	NL	0.03 a	0.030	0.000064 a	0.000064 a	0.000064	0.000064		
Aroclor-1242	53469-21-9	0.5 a	0.5 a	0.5 a	NL	0.0078	0.5	0.03 a	NL	0.03 a	0.030	0.000064 a	0.000064 a	0.000064	0.000064		
Aroclor-1248	12672-29-6	0.5 a	0.5 a	0.5 a	NL	0.0078	0.5	0.03 a	NL	0.03 a	0.030	0.000064 a	0.000064 a	0.000064	0.000064		
Aroclor-1254	11097-69-1	0.5 a	0.5 a	0.5 a	NL	0.0078	0.5	0.03 a	NL	0.03 a	0.030	0.000064 a	0.000064 a	0.000064	0.000064		
Aroclor-1260	11096-82-5	0.5 a	0.5 a	0.5 a	NL	0.0078	0.5	0.03 a	NL	0.03 a	0.030	0.000064 a	0.000064 a	0.000064	0.000064		
Aroclor-1262	37324-23-5	0.5 a	0.5 a	0.5 a	NL	0.0078 b	0.5	0.03 a	NL	0.03 a	0.030	0.000064 a	0.000064 a	0.000064	0.000064		
Aroclor-1268	11100-14-4	0.5 a	0.5 a	0.5 a	NL	0.0078 b	0.5	0.03 a	NL	0.03 a	0.030	0.000064 a	0.000064 a	0.000064	0.000064		
Dioxins/Furans (µg/L)																	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6	0.00003	0.00003	0.00001	NL	1.20E-07	0.00001	NL	NL	NL	NL	5.1E-09	5.1E-09	5.1E-09	5.1E-09		

Notes:

1. Groundwater criteria were selected in a hierarchical fashion as follows:

(a) Lowest of the following:

- (a-1) New Jersey Drinking Water Standards, September 2018 (<http://www.nj.gov/dep/standards/drinking%20water.pdf>), downloaded September 14, 2018.
- (a-2) EPA National Primary Drinking Water Standards, 40 CFR 141 as summarized in EPA 822-F-18-001, March 2018. <https://www.epa.gov/dwstandardsregulations/2018-drinking-water-standards-and-advisory-tables>
- (a-3) New Jersey Ground Water Quality Standards Class IIA (N.J.A.C. 7:9C), January 2018. (http://www.nj.gov/dep/wms/bears/Appendix_Table_1.htm#; downloaded 1/23/18)
- (a-4) New Jersey Ground Water Quality Standard (N.J.A.C. 7:9C), January 2018. (Interim Generic standard as listed in <http://www.nj.gov/dep/standards/ground%20water.pdf>; downloaded 1/25/18)

Synthetic organic chemicals lacking specific or interim specific criteria were assigned an interim generic standard value based on N.J.A.C. 7:9C: Appendix Table II.

(b) EPA Human health-based screening – RSL Tapwater (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.
<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>

2. Surface Water criteria were selected from the lowest of:

(a) Ecological screening criteria which were selected in a hierarchical fashion as follows:

- (a-1) NJDEP Ecological Screening Criteria (Saline Water Aquatic Chronic), March 10, 2009
Accessed January 2020 (<http://www.nj.gov/dep/srp/guidance/ecoscreening/>)
- (a-2) EPA Region 3 Biological Technical Assistance Group Marine Screening Benchmarks, July 2006
Accessed January 2020 (https://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_marine_benchmarks_07-06.pdf)
- (a-3) EPA National Recommended Aquatic Life Criteria table based on Saltwater CCC (chronic) values. If no chronic value available, criterion is based on acute value.
Accessed January 2020 (<http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>)

(b) Human health screening criteria which were selected from the lowest of the following:

- (b-1) NJDEP Surface Water Quality Standards: Human Health Criteria for saline water, October 2016
Accessed January 2020 (http://www.nj.gov/dep/rules/rules/njac7_9b.pdf)
- (b-2) EPA National Recommended Water Quality Criteria, Human Health for the consumption of organism only
Accessed May 2018 (<https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table>)

a: screening value for total polychlorinated biphenyls (PCBs) was used for all Aroclors. Aroclor data within each sample will be summed for comparison to the total PCB screening criteria.

b: screening value for Aroclor-1260

CCC - criterion continuous concentration

µg/L - microgram per liter

NL - not listed or chemical name listed but no value available

NJDEP - New Jersey Department of Environmental Protection

NJ GWQC - New Jersey Groundwater Quality Criteria

RSL - regional screening level

PCB - polychlorinated biphenyl

pg/L - picogram per liter = 1 x 10⁻⁶ microgram per liter

Table 1e
Aqueous Screening Criteria - Inorganics
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: µg/L)	CAS Number	Sample Matrix: Groundwater						Sample Matrix: Saline Surface Water							
		New Jersey Drinking Water Standards (NJMCL)	EPA National Primary Drinking Water Standards	NJDEP Ground Water Quality Standards	NJDEP Interim Ground Water Quality Standards	EPA RSL for Tapwater	Groundwater Criteria ¹	Ecological Screening Criteria				Human Health Screening Criteria			
								NJDEP Ecological Screening Criteria (Saline Chronic)	EPA Region 3 Marine Screening Benchmarks	National Recommended Water Quality Criteria (Saltwater Aquatic Life)	Ecological Screening Criteria for Saline Surface Water	NJDEP Surface Water Quality Criteria for Saline Water	National Recommended Water Quality Criteria (Human Health)	Human Health Screening Criteria for Surface Water	Surface Water Criteria ²
Aluminum	7429-90-5	200	NL	200	NL	20,000	200	NL	NL	NL	NL	NL	NL	NL	NL
Antimony	7440-36-0	6	6	NL	7.8	6	NL	500	NL	500	640	640	640	640	500
Arsenic	7440-38-2	5	10	3	NL	0.052	3	36	12.5	36	36	0.061	0.14	0.061	0.061
Barium	7440-39-3	2,000	2,000	6,000	NL	3,800	2,000	NL	NL	NL	NL	NL	NL	NL	NL
Beryllium	7440-41-7	4	4	1	NL	25	1	NL	NL	NL	NL	42	NL	42	42
Cadmium	7440-43-9	5	5	4	NL	9.2	d	4	8.8	0.12	7.9	8.8	16	NL	16
Calcium	7440-70-2	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Chromium (total)	7440-47-3	100	100	70	NL	NL	70	NL	57.5	NL	57.5	750	NL	750	58
Chromium (hexavalent)	18540-29-9	NL	b	100	b	70	b	NL	0.035	70	50	1.5	50	50	750
Cobalt	7440-48-4	NL	NL	100	NL	6	100	NL	NL	NL	NL	NL	NL	NL	NL
Copper	7440-50-8	1,300	1,300	c	1,300	NL	800	1,300	5.6	a	3.1	3.1	5.6	NL	NL
Cyanide	57-12-5	NL	200	100	NL	1.5	100	1	NL	NL	1	1	140	400	140
Iron	7439-89-6	300	NL	300	NL	14,000	300	NL	NL	NL	NL	NL	NL	NL	NL
Lead	7439-92-1	15	15	c	5	NL	15	5	24	8.1	5.6	24	NL	NL	24
Magnesium	7439-95-4	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Manganese	7439-96-5	50	NL	50	NL	430	e	50	NL	NL	NL	NL	100	100	100
Mercury	7439-97-6	NL	2	2	NL	0.63	2	0.94	0.016	0.94	0.94	0.94	0.051	NL	0.051
Nickel	7440-02-0	NL	NL	100	NL	390	100	22	8.2	8.2	22	1,700	4,600	1,700	22
Potassium	7440-09-7	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Selenium	7782-49-2	50	50	40	NL	100	40	71	71	71	71	4,200	4,200	4,200	71
Silver	7440-22-4	100	NL	40	NL	94	40	1.9	f	0.23	NL	1.90	40,000	NL	40,000
Sodium	7440-23-5	50,000	NL	50,000	NL	NL	50,000	NL	NL	NL	NL	NL	NL	NL	NL
Thallium	7440-28-0	2	2	2	NL	0.2	2	NL	21.3	NL	21.3	0.47	0.47	0.47	0.47
Vanadium	7440-62-2	NL	NL	NL	NL	86	86	NL	NL	NL	NL	NL	NL	NL	NL
Zinc	7440-66-6	5,000	NL	2,000	NL	6,000	2,000	81	118.14	81	81	26,000	26,000	26,000	81

Table 1e
Aqueous Screening Criteria - Inorganics
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Notes:

1. Groundwater criteria were selected in a hierarchical fashion as follows:

(a) Lowest of the following:

- (a-1) New Jersey Drinking Water Standards, September 2018 (<http://www.nj.gov/dep/standards/drinking%20water.pdf>), downloaded September 14, 2018.
- (a-2) EPA National Primary Drinking Water Standards, 40 CFR 141 as summarized in EPA 822-F-18-001, March 2018. <https://www.epa.gov/dwstandardsregulations/2018-drinking-water-standards-and-advisory-tables>
- (a-3) New Jersey Ground Water Quality Standards Class IIA (N.J.A.C. 7:9C), January 2018. (http://www.nj.gov/dep/wms/bears/Appendix_Table_1.htm#/; downloaded 1/23/18)
- (a-4) New Jersey Ground Water Quality Standard (N.J.A.C 7:9C), January 2018. (Interim Generic standard as listed in <http://www.nj.gov/dep/standards/ground%20water.pdf>; downloaded 1/25/18)

(b) EPA Human health-based screening – RSL Tapwater (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.
(<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

2. Surface Water criteria were selected from the lowest of:

(a) Ecological screening criteria which were selected in a hierarchical fashion as follows:

- (a-1) NJDEP Ecological Screening Criteria (Saline Water Aquatic Chronic), March 10, 2009
Accessed January 2020 (<http://www.nj.gov/dep/srp/guidance/ecoscreening/>)
- (a-2) EPA Region 3 Biological Technical Assistance Group Marine Screening Benchmarks, July 2006
Accessed January 2020 (https://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_marine_benchmarks_07-06.pdf)
- (a-3) EPA National Recommended Aquatic Life Criteria table based on Saltwater CCC (chronic) values. If no chronic value available, criterion is based on acute value.
Accessed January 2020 (<http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>)

(b) Human health screening criteria which were selected from the lowest of the following:

- (b-1) NJDEP Surface Water Quality Standards: Human Health Criteria for saline water, October 2016
Accessed January 2020 (http://www.nj.gov/dep/rules/rules/njac7_9b.pdf)
- (b-2) EPA National Recommended Water Quality Criteria, Human Health for the consumption of organism only
Accessed May 2018 (<https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table>)

a: NJDEP criteria for dissolved copper in saline portions of tributaries to Newark Bay, Raritan Bay, Arthur Kill, Kill Van Kull, saline portions of the Passaic, Hackensack, and Hudson rivers.

b: screening value for chromium (total)

c: lead and copper are regulated by a treatment technique; value shown is the action level

d: screening value for cadmium (water)

e: screening value for manganese (non-diet)

f: NJDEP acute value used because no chronic value available.

CCC - criterion continuous concentration

CMC - criterion maximum concentration

µg/L - microgram per liter

NJDEP - New Jersey Department of Environmental Protection

NJ GWQC - New Jersey Groundwater Quality Criteria

NL - not listed or chemical name listed but no value available

RSL - regional screening level

Table 2a
Solids Screening Criteria - Volatile Organic Compounds
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: mg/kg)	CAS Number	Sample Matrix: Soil (mg/kg)										Sample Matrix: Sediment in Saline Environment (mg/kg)					
		Human Health Screening Criteria				Ecological Screening Criteria				Soil Criteria ¹	Ecological Screening Criteria		EPA RSL for Industrial Soil	Sediment Criteria ²			
		NJDEP Non-Residential Direct Contact Remediation Standard	EPA RSL for Soil Protective of Groundwater	EPA RSL for Industrial Soil	Human Health Screening Criteria for Soil	NJDEP Ecological Screening Criteria for Soil	EPA EcoSSLs	PRGs for Ecological Endpoints	EPA Region 5		NJDEP Saline Sediment	EPA Region 3 Marine Sediment	Ecological Screening Criteria for Sediment				
1,1,1-Trichloroethane	71-55-6	NA	1.4 m	36,000	1.4	29.8	NL	NL	29.8	29.8	1.4	NL	0.856	0.856	36,000	0.856	
1,1,2,2-Tetrachloroethane	79-34-5	3	0.0006 r	2.7	3	0.127	NL	NL	0.127	0.127	3	NL	0.202	0.202	2.7	0.202	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	NL	520 r	28,000	520	NL	NL	NL	NL	520	NL	NL	NL	28,000	28,000	28,000	
1,1,2-Trichloroethane	79-00-5	6	0.032 m	5.0	6	28.6	NL	NL	28.6	28.6	6	NL	0.57	0.57	5.0	0.57	
1,1-Dichloroethane	75-34-3	24	0.0156 r	16	24	NL	NL	NL	20.1	20.1	24	NL	NL	NL	16	16	
1,1-Dichloroethene	75-35-4	150	0.05 m	1,000	150	8.28	NL	NL	8.28	8.28	150	NL	2.78	2.78	1,000	2.78	
1,2,3-Trichlorobenzene	87-61-6	NL	0.42 r	930	0.42	20	NL	NL	20	20	0.42	NL	NL	NL	930	930.0	
1,2,4-Trichlorobenzene	120-82-1	820	4 m	110	820	20	NL	NL	11.1	20	820	0.0048 c	0.473	0.0048	110	0.0048	
1,2-Dibromo-3-chloropropane	96-12-8	0.2	0.00172 m	0.064	0.2	NL	NL	0.0352	0.0352	0.20	NL	NL	NL	0.064	0.064	0.064	
1,2-Dibromoethane	106-93-4	0.04	0.00028 m	0.16	0.04	NL	NL	1.23	1.23	0.040	NL	NL	NL	0.16	0.16	0.16	
1,2-Dichlorobenzene	95-50-1	59,000	11.6 m	9,300	59,000	2.96	NL	NL	2.96	2.96	59,000	NL	0.989	0.989	9,300	0.989	9,300
1,2-Dichloroethane	107-06-2	3.00	0.028 m	2.0	3.00	21.2	NL	NL	21.2	21.2	3.00	NL	NL	NL	2.0	2	2
1,2-Dichloroethene, cis-	156-59-2	560	0.42 m	2,300	560	NL	NL	NL	NL	560	NL	NL	NL	2,300	2,300	2,300	
1,2-Dichloroethene, trans-	156-60-5	720	0.62 m	23,000	720	0.784	NL	NL	0.784	0.784	720	NL	NL	NL	23,000	23,000	23,000
1,2-Dichloropropane	78-87-5	5	0.034 m	11	5	32.7	NL	NL	32.7	32.7	5	NL	NL	NL	11	11	11
1,3-Dichlorobenzene	541-73-1	59,000	NL	NL	59,000	37.7	NL	NL	37.7	37.7	59,000	NL	0.842	0.842	NL	0.842	0.842
1,3-Dichloropropene, cis-	10061-01-5	7 b	0.0034 r, b	8.2 b	7	NL	NL	0.398	0.398	7	NL	0.00731 b	0.00731	8.2	0.00731	8.2	0.00731
1,3-Dichloropropene, trans-	10061-02-6	7 b	0.0034 r, b	8.2 b	7	NL	NL	0.398	0.398	7	NL	0.00731 b	0.00731	8.2	0.00731	8.2	0.00731
1,4-Dichlorobenzene	106-46-7	13	1.4 m	11	13	0.546	NL	NL	20	0.546	1	13	0.11 c	0.46	0.11	11	0.11
2-Butanone	78-93-3	44,000	24 r	190,000	44,000	NL	NL	NL	89.6	89.6	44,000	NL	NL	NL	190,000	190,000	190,000
2-Hexanone	591-78-6	NL	0.18 r	1,300	0.18	NL	NL	NL	12.6	12.6	0.176	NL	NL	NL	1,300	1,300	1,300
4-Methyl-2-pentanone	108-10-1	NL	28 r	140,000	28	NL	NL	NL	443	443	28	NL	NL	NL	140,000	140,000	140,000
Acetone	67-64-1	NA	58 r	670,000	58	NL	NL	NL	2.5	2.5	58	NL	NL	NL	670,000	670,000	670,000
Benzene	71-43-2	5	0.052 m	5.1	5	0.255	NL	NL	0.255	0.255	5	0.34	0.137	0.34	5.1	0.34	5.1
Bromochloromethane	74-97-5	NL	0.42 r	630	0.42	NL	NL	NL	NL	0.42	NL	NL	NL	630	630	630	
Bromodichloromethane	75-27-4	3	0.44 m	1.3	3	0.54	NL	NL	0.540	0.540	3	NL	NL	NL	1.3	1.3	1.3
Bromoform	75-25-2	280	0.42 m	86	280	15.9	NL	NL	15.9	15.9	280	NL	1.31	1.31	86	1.31	86
Bromomethane	74-83-9	59	0.038 r	30	59	0.235	NL	NL	0.235	0.235	59	NL	NL	NL	30	30	30
Carbon Disulfide	75-15-0	110,000	4.8 r	3,500	110,000	NL	NL	NL	0.0941	0.0941	110,000	NL	NL	NL	3,500	3,500	3,500
Carbon Tetrachloride	56-23-5	4	0.038 m	2.9	4	2.98	NL	NL	2.98	2.98	4	NL	7.24	7.24	2.9	7.24	7.24
Chlorobenzene	108-90-7	7,400	1.4 m	1,300	7,400	13.1	NL	40	13.1	13.1	7,400	NL	0.162	0.162	1,300	0.162	1,300
Chloroethane	75-00-3	1,100	118 r	57,000	1,100	NL	NL	NL	NL	1,100	NL	NL	NL	57,000	57,000	57,000	
Chloroform	67-66-3	2	0.44 m	1.4	2	1.19	NL	NL	1.19	1.19	2.0	NL	NL	NL	1.4	1.4	1.4
Chloromethane	74-87-3	12	0.98 r	460	12	NL	NL	NL	10.4	10.4	12	NL	NL	NL	460	460	460
Cyclohexane	110-82-7	NL	260 r	27,000	260	NL	NL	NL	NL	260	NL	NL	NL	27,000	27,000	27,000	
Dibromochloromethane	124-48-1	8	0.42 m	39	8	2.05	NL	NL	2.05	2.05	8	NL	NL	NL	39	39	39
Dichlorodifluoromethane	75-71-8	230,000	6 r	370	230,000	NL	NL	NL	39.5	39.5	230,000	NL	NL	NL	370	370	370
Ethylbenzene	100-41-4	110,000	16 m	25	110,000	5.16	NL	NL	5.16	5.16	110,000	1.4	0.305	1.4	25	1.4	25
Isopropylbenzene	98-82-8	NL	15 r	9,900	14.8	NL	NL	NL	NL	15	NL	NL	NL	9,900	9,900	9,900	
Methyl Acetate	79-20-9	NA	82 r	1,200,000	82	NL	NL	NL	NL	82	NL	NL	NL	1,200,000	1,200,000	1,200,000	
Methyl tert-Butyl Ether	1634-04-4	320	0.064 r	210	320	NL	NL	NL	NL	320	NL	NL	NL	210	210	210	
Methylcyclohexane	108-87-2	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Methylene Chloride	75-09-2	230	0.026 m	1,000	230	4.05</td											

Table 2a
Solids Screening Criteria - Volatile Organic Compounds
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Notes:

1. Soil criteria were selected in a hierarchical manner arranged as follows:
 - (a) NJDEP Non-Residential Direct Contact Soil Remediation Standard, Last Amended September 2017 (https://www.nj.gov/dep/rules/rules/njac7_26d.pdf)
 - (b) EPA Regional Screening Level (RSL) (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower of the RSLs for soil protective of groundwater or industrial soil was selected. (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

(b-1) RSL for soil protective of groundwater, based on Maximum Contaminant Level (MCL), where available, and a dilution factor of 20. Otherwise based on the RSL for tapwater (lower of the RSLs for target cancer risk of 1×10^{-6} or target noncancer hazard quotient of 1) and a dilution factor of 20.

m: Maximum Contaminant Level (MCL)-based value

r: risk-based value

(b-2) RSL for industrial soil (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.

- (c) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(c-1) NJDEP Ecological Screening Criteria for soil, March 2009 (<http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

NJDEP presents six types of ecological screening criteria for soil; the lowest value among the six was used.

(c-2) EPA Ecological Soil Screening Levels (EcoSSLs). <https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents>

(c-3) Efroymson, R.A., G.W. Suter II, B.E. Sample, and D.S. Jones. 1997. Preliminary Remediation Goals (PRGs) for Ecological Endpoints.

Prepared for the U.S. Department of Energy, Office of Environmental Management Contract No. DE-AC05-84OR21401.

(c-4) EPA 2003. EPA Region 5 Resource Conservation and Recovery Act (RCRA) Ecological Screening Levels.

2. Sediment criteria were selected in a hierarchical manner arranged as follows:

- (a) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(a-1) NJDEP Ecological Screening Criteria: Effects Range Low for saline water sediment, March 2009 (accessed January 2020, <http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

(a-2) EPA Region 3 Biological Technical Assistance Group (BTAG) Marine Sediment Screening Benchmarks, July 2006 (accessed January 2020, https://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_marine_sediment_benchmarks_7-06.pdf)

- (b) EPA Human health-based screening – RSL industrial soil values (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected. (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

a: screening value for Xylene

b: screening value for 1,3-Dichloropropene

c: NJDEP sediment ecological screening criteria is based on a saline Effects Range Medium value in the absence of an Effects Range Low value.

N/A - not applicable

NJDEP - New Jersey Department of Environmental Protection

NL - not listed

RSL - regional screening level

VOC - volatile organic compound

Table 2b
Solids Screening Criteria - Semi-Volatile Organic Compounds
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: mg/kg)	CAS Number	Sample Matrix: Soil (mg/kg)										Sample Matrix: Sediment in Saline Environment (mg/kg)				
		Human Health Screening Criteria				Ecological Screening Criteria					Soil Criteria ¹	Ecological Screening Criteria			EPA RSL for Industrial Soil	Sediment Criteria ²
		NJDEP Non-Residential Direct Contact Remediation Standard	EPA RSL for Soil Protective of Groundwater	EPA RSL for Industrial Soil	Human Health Screening Criteria for Soil	NJDEP Ecological Screening Criteria for Soil	EPA EcoSSLs	PRGs for Ecological Endpoints	EPA Region 5	Ecological Screening Criteria for Soil		NJDEP Saline Sediment	EPA Region 3 Marine Sediment	Ecological Screening Criteria for Sediment		
1,1'-Biphenyl	92-52-4	240	0.174 r	200	240	60	NL	60	NL	60	240	NL	NL	NL	200	200
1,2,4,5-Tetrachlorobenzene	95-94-3	NL	0.158 r	350	0.158	2.02	NL	NL	2.02	2.02	0.158	NL	47	47	350	47
1,4-Dioxane	123-91-1	NL	0.00188 r	24	0.00188	NL	NL	NL	2.05	2.05	0.00188	NL	NL	NL	24	24
2,2'-oxybis(1-Chloropropane)	108-60-1	67	5.2 r	47,000	67	19.9	NL	NL	19.9	19.9	67	NL	NL	NL	47,000	47,000
2,3,4,6-Tetrachlorophenol	58-90-2	NL	3.6 r	25,000	3.6	NL	NL	NL	0.199	0.199	3.6	NL	NL	NL	25,000	25,000
2,4,5-Trichlorophenol	95-95-4	68,000	80 r	82,000	68,000	4	NL	9	14.1	4	68,000	0.003 a	0.819	0.003	82,000	0.003
2,4,6-Trichlorophenol	88-06-2	74	0.08 r	210	74	4	NL	4	9.94	4	74	0.006 a	2.65	0.006	210	0.006
2,4-Dichlorophenol	120-83-2	2,100	0.46 r	2,500	2,100	87.5	NL	NL	87.5	87.5	2,100	0.005 a	NL	0.0050	2,500	0.005
2,4-Dimethylphenol	105-67-9	14,000	8.4 r	16,000	14,000	0.01	NL	NL	0.010	0.010	14,000	NL	NL	NL	16,000	16,000
2,4-Dinitrophenol	51-28-5	1,400	0.88 r	1,600	1,400	0.0609	NL	20	0.0609	0.0609	1,400	NL	NL	NL	1,600	1,600
2,4-Dinitrotoluene	121-14-2	3	0.0064 r	7.4	3	1.28	NL	NL	1.28	1.28	3.0	NL	NL	NL	7.4	7.4
2,6-Dinitrotoluene	606-20-2	3	0.00134 r	1.50	3	NL	NL	NL	0.0328	0.0328	3.0	NL	NL	NL	1.50	1.50
2-Chloronaphthalene	91-58-7	NL	78 r	60,000	78	0.0122	NL	NL	0.0122	0.0122	78	NL	NL	NL	60,000	60,000
2-Chlorophenol	95-57-8	2,200	1.78 r	5,800	2,200	0.243	NL	NL	0.243	0.243	2,200	0.008 a	0.344	0.0080	5,800	0.008
2-Methylnaphthalene	91-57-6	2,400	3.8 r	3,000	2,400	3.24	NL	NL	3.24	3.24	2,400	0.07	0.02	0.07	3,000	0.07
2-Methylphenol	95-48-7	3,400	15 r	41,000	3,400	NL	NL	NL	40.4	40.4	3,400	NL	NL	NL	41,000	41,000
2-Nitroaniline	88-74-4	23,000	1.6 r	8,000	23,000	NL	NL	NL	74.1	74.1	23,000	NL	NL	NL	8,000	8,000
2-Nitrophenol	88-75-5	NL	NL	NL	NL	NL	NL	NL	1.60	1.60	1.6	NL	NL	NL	NL	NL
3,3'-Dichlorobenzidine	91-94-1	4	0.0164 r	5.1	4	0.646	NL	NL	0.646	0.646	4	NL	2.06	2.06	5.1	2.06
3-Methylphenol	108-39-4	NL	14.8 r	41,000	14.8	NL	NL	NL	NL	NL	14.8	NL	NL	NL	41,000	41,000
3-Nitroaniline	99-09-2	NL	NL	NL	NL	NL	NL	NL	3.16	3.16	3.16	NL	NL	NL	NL	NL
4,6-Dinitro-2-methylphenol	534-52-1	68	0.052 r	66	68	NL	NL	NL	0.14	0.14	68	NL	NL	NL	66	66
4-Bromophenyl-phenylether	101-55-3	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
4-Chloro-3-methylphenol	59-50-7	NL	34 r	82,000	34	NL	NL	NL	7.95	7.95	34	NL	NL	NL	82,000	82,000
4-Chloroaniline	106-47-8	NL	0.0032 r	11	0.0032	NL	NL	NL	1.10	1.10	0.0032	NL	NL	NL	11	11.0
4-Chlorophenyl-phenyl ether	7005-72-3	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
4-Methylphenol	106-44-5	340	30 r	82,000	340	NL	NL	NL	163	163	340	NL	NL	NL	82,000	82,000
4-Nitroaniline	100-01-6	NL	0.032 r	110	0.032	NL	NL	NL	21.9	21.9	0.032	NL	NL	NL	110	110
4-Nitrophenol	100-02-7	NL	NL	NL	NL	5.12	NL	7	5.12	5.12	NL	NL	NL	NL	NL	NL
Acenaphthene	83-32-9	37,000	110 r	45,000	37,000	20	29	20	682	20	37,000	0.016	0.007	0.016	45,000	0.016
Acenaphthylene	208-96-8	NL	NL	NL	NL	682	29	NL	682	682	0.044	0.006	0.044	NL	0.044	NL
Acetophenone	98-86-2	5	11.6 r	120,000	5	NL	NL	NL	300	300	5	NL	NL	NL	120,000	120,000
Anthracene	120-12-7	30,000	1160 r	230,000	30,000	1480	29	NL	1480	1480	30,000	0.085	0.047	0.085	230,000	0.085
Atrazine	1912-24-9	2,400	0.038 m	10	2,400	NL	NL	NL	NL	NL	2,400	NL	NL	NL	10	10
Benzaldehyde	100-52-7	68,000	0.082 r	820	68,000	NL	NL	NL	NL	NL	68,000	NL	NL	NL	820	820
Benzo(a)anthracene	56-55-3	17	0.22 r	21	17	5.21	1.1	NL	5.21	5.21	17	0.261	0.075	0.261	21	0.261
Benzo(a)pyrene	50-32-8	2.0	4.8 m	2.1	2.0	1.52	1.1	NL	1.52	1.52	2.0	0.43	0.089	0.43	2.1	0.43
Benzo(b)fluoranthene	205-99-2	17	6 r	21	17	59.8	1.1	NL	59.8	59.8	17	1.8 a	NL	1.8	21	1.8
Benzo(g,h,i)perylene	191-24-2	30,000	NL	NL	30,000	119	1.1	NL	119	119	30,000	0.17	NL	0.17	NL	0.17
Benzo(k)fluoranthene	207-08-9	170	58 r	210	170	148	1.1	NL	148	148	170	0.24	NL	0.24	210	0.24
bis(2-Chloroethoxy) methane	111-91-1	NL	0.26 r	2,500	0.26	NL	NL	NL	0.302	0.302	0.26	NL	NL	NL	2,500	2,500
bis(2-Chloroethyl) ether	111-44-4	2.0	0.000072 r	1.0	2.0	23.7	NL	NL	23.7	23.7	2.0	NL	NL	NL	1.0	1.0
bis-(2-Ethylhexyl)phthalate	117-81-7	140	28 m	160	140	0.925	NL	NL	0.925	0.925	140	0.182	0.182	0.182	160	0.182
Butylbenzylphthalate	85-68-7	14,000	4.8 r	1,200	14,000	0.239	NL	NL	0.239	0.239	14,0					

Table 2b
Solids Screening Criteria - Semi-Volatile Organic Compounds
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: mg/kg)	CAS Number	Sample Matrix: Soil (mg/kg)										Sample Matrix: Sediment in Saline Environment (mg/kg)				
		Human Health Screening Criteria				Ecological Screening Criteria					Soil Criteria ¹	Ecological Screening Criteria			EPA RSL for Industrial Soil	Sediment Criteria ²
		NJDEP Non-Residential Direct Contact Remediation Standard	EPA RSL for Soil Protective of Groundwater	EPA RSL for Industrial Soil	Human Health Screening Criteria for Soil	NJDEP Ecological Screening Criteria for Soil	EPA EcoSSLs	PRGs for Ecological Endpoints	EPA Region 5	Ecological Screening Criteria for Soil		NJDEP Saline Sediment	EPA Region 3 Marine Sediment	Ecological Screening Criteria for Sediment		
Fluorene	86-73-7	24,000	108 r	30,000	24,000	122	29	NL	122	122	24,000	0.019	0.021	0.019	30,000	0.019
Hexachlorobenzene	118-74-1	1	0.26 m	0.96	1	0.199	NL	NL	0.199	0.199	1.0	0.02	NL	0.02	0.96	0.02
Hexachlorobutadiene	87-68-3	25	0.0054 r	5.3	25	0.0398	NL	NL	0.0398	0.0398	25	0.001 a	NL	0.001	5.3	0.001
Hexachlorocyclopentadiene	77-47-4	110	3.2 m	7.5	110	0.755	NL	10	0.755	0.755	110	NL	0.139	0.139	7.5	0.139
Hexachloroethane	67-72-1	48	0.004 r	8.0	48	0.596	NL	NL	0.596	0.596	48	0.073 a	0.804	0.073	8.0	0.073
Indeno(1,2,3-cd)pyrene	193-39-5	17	19.6 r	21	17	109	1.1	NL	109	109	17	0.2	NL	0.2	21	0.2
Isophorone	78-59-1	2,000	0.52 r	2,400	2,000	139	NL	NL	139	139	2,000	NL	NL	NL	2,400	2,400
Naphthalene	91-20-3	17	0.0108 r	17	17	0.0994	29	NL	0.0994	0.0994	17	0.160	0.035	0.16	17	0.16
Nitrobenzene	98-95-3	14	0.00184 r	22	14	1.31	NL	NL	1.31	1.31	14	NL	NL	NL	22	22.000
N-Nitroso-di-n-propylamine	621-64-7	0.3	0.000162 r	0.33	0.3	NL	NL	0.544	0.544	0.3	NL	NL	NL	NL	0.33	0.330
N-Nitrosodiphenylamine	86-30-6	390	1.34 r	470	390	0.545	NL	NL	0.545	0.545	390	NL	422	422	470	422
Pentachlorophenol	87-86-5	3	0.028 m	4.0	3	0.119	2.1	3	0.119	0.119	3.0	0.017 a	7.97	0.017	4.0	0.017
Phenanthrone	85-01-8	NL	NL	NL	NL	45.7	29	NL	45.7	45.7	46	0.24	0.087	0.24	NL	0.24
Phenol	108-95-2	210,000	66 r	250,000	210,000	30	NL	30	120	30	210,000	0.13 a	NL	0.13	250,000	0.13
Pyrene	129-00-0	18,000	260 r	23,000	18,000	78.5	1.1	NL	78.5	78.5	18,000	0.665	0.153	0.665	23,000	0.665

Notes:

1. Soil criteria were selected in a hierarchical manner arranged as follows:

(a) NJDEP Non-Residential Direct Contact Soil Remediation Standard, Last Amended September 2017 (https://www.nj.gov/dep/rules/rules/njac7_26d.pdf)

(b) EPA Regional Screening Level (RSL) (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower of the RSLs for soil protective of groundwater or industrial soil was selected. (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

(b-1) RSL for soil protective of groundwater, based on Maximum Contaminant Level (MCL), where available, and a dilution factor of 20. Otherwise based on the RSL for tapwater (lower of the RSLs for target cancer risk of 1×10^{-6} or target noncancer hazard quotient of 1) and a dilution factor of 20.

m: Maximum Contaminant Level (MCL)-based value

r: risk-based value

(b-2) RSL for industrial soil (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.

(c) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(c-1) NJDEP Ecological Screening Criteria for soil, March 2009 (<http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

NJDEP presents six types of ecological screening criteria for soil; the lowest value among the six was used.

(c-2) EPA Ecological Soil Screening Levels (EcoSSLs). <https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents>

Values for some SVOCs are based on the low molecular weight or high molecular weight PAHs

(c-3) Efroyzman, R.A., G.W. Suter II, B.E. Sample, and D.S. Jones. 1997. Preliminary Remediation Goals (PRGs) for Ecological Endpoints.

Prepared for the U.S. Department of Energy, Office of Environmental Management Contract No. DE-AC05-84OR21401.

(c-4) EPA 2003. EPA Region 5 Resource Conservation and Recovery Act (RCRA) Ecological Screening Levels.

2. Sediment criteria were selected in a hierarchical manner arranged as follows:

(a) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(a-1) NJDEP Ecological Screening Criteria: Effects Range Low for saline water sediment, March 2009 (accessed January 2020, <http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

(a-2) EPA Region 3 Biological Technical Assistance Group (BTAG) Marine Sediment Screening Benchmarks, July 2006 (accessed January 2020, https://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_marine_sediment_benchmarks_7-06.pdf)

(b) EPA Human health-based screening – RSL industrial soil values (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected. (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

a: NJDEP sediment ecological screening criteria is based on a saline Effects Range Medium value in the absence of an Effects Range Low value.

mg/kg - milligram per kilogram

N/A - not applicable

NJDEP - New Jersey Department of Environmental Protection

NL - not listed

Table 2c
Solids Screening Criteria - Pesticides
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: mg/kg)	CAS Number	Sample Matrix: Soil (mg/kg)										Sample Matrix: Sediment in Saline Environment (mg/kg)				
		Human Health Screening Criteria				Ecological Screening Criteria					Soil Criteria ¹	Ecological Screening Criteria			EPA RSL for Industrial Soil	Sediment Criteria ²
		NJDEP Non-Residential Direct Contact Remediation Standard	EPA RSL for Soil Protective of Groundwater	EPA RSL for Industrial Soil	Human Health Screening Criteria for Soil	NJDEP Ecological Screening Criteria for Soil	EPA EcoSSLs	PRGs for Ecological Endpoints	EPA Region 5	Ecological Screening Criteria for Soil		NJDEP Saline Sediment	EPA Region 3 Marine Sediment	Ecological Screening Criteria for Sediment		
4,4'-DDD	72-54-8	13	0.15 r	9.6	13	0.758	0.021 a	NL	0.758	0.758	13	0.002	0.00122	0.002	9.6	0.002
4,4'-DDE	72-55-9	9	0.22 r	9.3	9	0.596	0.021 a	NL	0.596	0.596	9	0.0022	0.00207	0.0022	9.3	0.0022
4,4'-DDT	50-29-3	8	1.54 r	8.5	8	0.004	0.021 a	NL	0.0035	0.00350	8	0.001	0.00119	0.001	8.5	0.001
Aldrin	309-00-2	0.20	0.003 r	0.18	0.20	0.003	NL	NL	0.00332	0.00332	0.20	0.002	NL	0.002	0.18	0.002
BHC, alpha	319-84-6	0.5	0.00084 r	0.36	0.5	0.099	NL	NL	0.0994	0.0994	0.5	NL	1.36	1.36	0.36	1.36
BHC, beta	319-85-7	2.0	0.003 r	1.3	2.0	0.004	NL	NL	0.00398	0.00398	2.0	NL	NL	NL	1.3	1.3
BHC, delta	319-86-8	NL	0.003 r,b	1.3 b	0.003	NL	NL	NL	9.94	9.94	0.003	NL	NL	NL	1.3	1.3
BHC, gamma (Lindane)	58-89-9	2.0	0.024 m	2.5	2.0	0.005	NL	NL	0.005	0.005	2.0	NL	0.00032	0.000	2.5	0.00032
Chlordane, alpha	5103-71-9	1,000	5.4 m,c	7.7 c	1,000	224 c	NL	NL	0.224	224	1,000	0.00324 c	0.00226 c	0.00324	7.7	0.00324
Chlordane, gamma	5103-74-2	1,000	5.4 m,c	7.7 c	1,000	224 c	NL	NL	0.224	224	1,000	0.00324 c	0.00226 c	0.00324	7.7	0.00324
Dieldrin	60-57-1	0.20	0.00142 r	0.14	0.20	0.002	0.005	NL	0.00238	0.00238	0.20	0.0019	0.00072	0.0019	0.14	0.0019
Endosulfan I	959-98-8	6,800 d	28 r,d	7,000 d	6,800	NL	NL	NL	0.119	0.119	6,800	NL	NL	NL	7,000	7,000
Endosulfan II	33213-65-9	6,800 d	28 r,d	7,000 d	6,800	NL	NL	NL	0.119	0.119	6,800	NL	NL	NL	7,000	7,000
Endosulfan sulfate	1031-07-8	6,800	42 r	4,900	6,800	0.036	NL	NL	0.0358	0.0358	6,800	NL	0.00036	0.000357	4,900	0.000357
Endrin	72-20-8	340	1.62 m	250	340	0.010	NL	NL	0.0101	0.0101	340	0.00222	0.00267	0.00222	250	0.00222
Endrin aldehyde	7421-93-4	NL	1.62 m,e	NL	1.62	0.011	NL	NL	0.0105	0.0105	1.6200	NL	NL	NL	NL	NL
Endrin ketone	53494-7-5	NL	1.62 m,e	NL	1.62	NL	NL	NL	NL	NL	1.62	NL	NL	NL	NL	NL
Heptachlor	76-44-8	0.7	0.66 m	0.63	0.7	0.006	NL	NL	0.00598	0.00598	0.7	0.0003 f	NL	0.0003	0.63	0.0003
Heptachlor epoxide	1024-57-3	0.30	0.082 m	0.33	0.30	0.152	NL	NL	0.152	0.152	0.30	0.00247	0.0006	0.00247	0.33	0.00247
Methoxychlor	72-43-5	5,700	44 m	4,100	5,700	0.020	NL	NL	0.0199	0.0199	5,700	NL	0.0296	0.0296	4,100	0.0296
Toxaphene	8001-35-2	3.0	9.2 m	2.1	3.0	0.119	NL	NL	0.119	0.119	3.0	NL	0.536	0.536	2.1	0.536

Table 2c
Solids Screening Criteria - Pesticides
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Notes:

1. Soil criteria were selected in a hierarchical manner arranged as follows:

(a) NJDEP Non-Residential Direct Contact Soil Remediation Standard, Last Amended September 2017 (https://www.nj.gov/dep/rules/rules/njac7_26d.pdf)

(b) EPA Regional Screening Level (RSL) (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower of the RSLs for soil protective of groundwater or industrial soil was selected.
(<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

(b-1) RSL for soil protective of groundwater, based on Maximum Contaminant Level (MCL), where available, and a dilution factor of 20. Otherwise based on the RSL for tapwater (lower of the RSLs for target cancer risk of 1×10^{-6} or target noncancer hazard quotient of 1) and a dilution factor of 20.

m: Maximum Contaminant Level (MCL)-based value

r: risk-based value

(b-2) RSL for industrial soil (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.

(c) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(c-1) NJDEP Ecological Screening Criteria for soil, March 2009 (<http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

NJDEP presents six types of ecological screening criteria for soil; the lowest value among the six was used.

(c-2) EPA Ecological Soil Screening Levels (EcoSSLs). <https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents>

(c-3) Efroymson, R.A., G.W. Suter II, B.E. Sample, and D.S. Jones. 1997. Preliminary Remediation Goals (PRGs) for Ecological Endpoints.

Prepared for the U.S. Department of Energy, Office of Environmental Management Contract No. DE-AC05-84OR21401.

(c-4) EPA 2003. EPA Region 5 Resource Conservation and Recovery Act (RCRA) Ecological Screening Levels.

2. Sediment criteria were selected in a hierarchical manner arranged as follows:

(a) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(a-1) NJDEP Ecological Screening Criteria: Effects Range Low for saline water sediment, March 2009 (accessed January 2020, <http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

(a-2) EPA Region 3 Biological Technical Assistance Group (BTAG) Marine Sediment Screening Benchmarks, July 2006 (accessed January 2020, https://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_marine_sediment_benchmarks_7-06.pdf)

(b) EPA Human health-based screening – RSL industrial soil values (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.

(<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

a: screening value for Total DDX

b: screening value for Hexachlorocyclohexane, Technical

c: screening value for chlordane

d: screening value for endosulfan

e: screening value for endrin

f: NJDEP sediment ecological screening criteria is based on a saline Effects Range Medium value in the absence of an Effects Range Low value.

mg/kg - milligram per kilogram

N/A - not applicable

NJDEP - New Jersey Department of Environmental Protection

NL - not listed

Table 2d
Solids Screening Criteria - Polychlorinated Biphenyls and Dioxins/Furans
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: mg/kg)	CAS Number	Sample Matrix: Soil (mg/kg)								Sample Matrix: Sediment in Saline Environment (mg/kg)						
		Human Health Screening Criteria				Ecological Screening Criteria				Soil Criteria ¹	Ecological Screening Criteria			EPA RSL for Industrial Soil	Sediment Criteria ²	
		NJDEP Non-Residential Direct Contact Remediation Standard	EPA RSL for Soil Protective of Groundwater	EPA RSL for Industrial Soil	Human Health Screening Criteria for Soil	NJDEP Ecological Screening Criteria for Soil	EPA EcoSSLs	PRGs for Ecological Endpoints	EPA Region 5		NJDEP Saline Sediment	EPA Region 3 Marine Sediment	Ecological Screening Criteria for Sediment			
Polychlorinated Biphenyls																
Aroclor-1016	12674-11-2	1 a	0.42 r	27	1	0.000332 a	NL	0.371	0.000332 a	0.000332	1	0.007	0.04 a	0.007	27	0.007
Aroclor-1221	11104-28-2	1 a	0.0016 r	0.83	1	0.000332 a	NL	0.371	0.000332 a	0.000332	1	0.023	0.04 a	0.023	0.83	0.023
Aroclor-1232	11141-16-5	1 a	0.0016 r	0.72	1	0.000332 a	NL	0.371	0.000332 a	0.000332	1	0.023	0.04 a	0.023	0.72	0.023
Aroclor-1242	53469-21-9	1 a	0.024 r	0.95	1	0.000332 a	NL	0.371	0.000332 a	0.000332	1	0.023	0.04 a	0.023	0.95	0.023
Aroclor-1248	12672-29-6	1 a	0.024 r	0.94	1	0.000332 a	NL	0.371	0.000332 a	0.000332	1	0.03	0.04 a	0.03	0.94	0.03
Aroclor-1254	11097-69-1	1 a	0.04 r	0.97	1	0.000332 a	NL	0.371	0.000332 a	0.000332	1	0.06	0.0633	0.06	0.97	0.06
Aroclor-1260	11096-82-5	1 a	0.11 r	0.99	1	0.000332 a	NL	0.371	0.000332 a	0.000332	1	0.005	0.04 a	0.005	0.99	0.005
Aroclor-1262	37324-23-5	1 a	0.11 r,b	0.99 b	1	0.000332 a	NL	0.371	0.000332 a	0.000332	1	0.023	0.04 a	0.023	0.99	0.023
Aroclor-1268	11100-14-4	1 a	0.11 r,b	0.99 b	1	0.000332 a	NL	0.371	0.000332 a	0.000332	1	0.023	0.04 a	0.023	0.99	0.023
Dioxins/Furans																
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6	NL	3.0E-04 m	2.2E-05	2.2E-05	1.99E-07	NL	NL	1.99E-07	1.99E-07	2.20E-05	3.6E-06 c	NL	3.6E-06	2.2E-05	3.6E-06

Notes:

1. Soil criteria were selected in a hierarchical manner arranged as follows:

(a) NJDEP Non-Residential Direct Contact Soil Remediation Standard, Last Amended September 2017 (https://www.nj.gov/dep/rules/rules/njac7_26d.pdf)

(b) EPA Regional Screening Level (RSL) (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower of the RSLs for soil protective of groundwater or industrial soil was selected. (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

(b-1) RSL for soil protective of groundwater, based on Maximum Contaminant Level (MCL), where available, and a dilution factor of 20. Otherwise based on the RSL for tapwater (lower of the RSLs for target cancer risk of 1×10^{-6} or target noncancer hazard quotient of 1) and a dilution factor of 20.
m: Maximum Contaminant Level (MCL)-based value

r: risk-based value

(b-2) RSL for industrial soil (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.

(c) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(c-1) NJDEP Ecological Screening Criteria for soil, March 2009 (<http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

NJDEP presents six types of ecological screening criteria for soil; the lowest value among the six was used.

(c-2) EPA Ecological Soil Screening Levels (EcoSSLs). <https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents>

(c-3) Efroymson, R.A., G.W. Suter II, B.E. Sample, and D.S. Jones. 1997. Preliminary Remediation Goals (PRGs) for Ecological Endpoints.

Prepared for the U.S. Department of Energy, Office of Environmental Management Contract No. DE-AC05-84OR21401.

(c-4) EPA 2003. EPA Region 5 Resource Conservation and Recovery Act (RCRA) Ecological Screening Levels.

2. Sediment criteria were selected in a hierarchical manner arranged as follows:

(a) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(a-1) NJDEP Ecological Screening Criteria: Effects Range Low for saline water sediment, March 2009 (accessed January 2020, <http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

(a-2) EPA Region 3 Biological Technical Assistance Group (BTAG) Marine Sediment Screening Benchmarks, July 2006 (accessed January 2020, https://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_marine_sediment_benchmarks_7-06.pdf)

(b) EPA Human health-based screening – RSL industrial soil values (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected. (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

a: screening value for total polychlorinated biphenyls (PCBs). Aroclor data within each sample will be summed for comparison to screening criteria that are based on total PCBs.

b: screening value for Aroclor-1260

c: NJDEP sediment ecological screening criteria is based on a saline Effects Range Medium value in the absence of an Effects Range Low value.

mg/kg - milligram per kilogram

N/A - not applicable

NJDEP - New Jersey Department of Environmental Protection

Table 2e
Solids Screening Criteria - Inorganics
Pierson's Creek Superfund Site, OU1
Newark, New Jersey

Analyte (All Units: mg/kg)	CAS Number	Sample Matrix: Soil (mg/kg)									Sample Matrix: Sediment in Saline Environment (mg/kg)					
		Human Health Screening Criteria				Ecological Screening Criteria					Soil Criteria ¹	Ecological Screening Criteria			EPA RSL for Industrial Soil	Sediment Criteria ²
		NJDEP Non-Residential Direct Contact Remediation Standard	EPA RSL for Soil Protective of Groundwater	EPA RSL for Industrial Soil	Human Health Screening Criteria for Soil	NJDEP Ecological Screening Criteria for Soil	EPA EcoSSLs	PRGs for Ecological Endpoints	EPA Region 5	Ecological Screening Criteria for Soil		NJDEP Saline Sediment	EPA Region 3 Marine Sediment	Ecological Screening Criteria for Sediment		
Aluminum	7429-90-5	NA	600,000 r	1,100,000	600,000	50	NL	NL	NL	50	600,000	18,000 a	NL	18,000	1,100,000	18,000
Antimony	7440-36-0	450	5.4 m	470	450	0.27	0.27	5	0.142	0.27	450	9.3 a	NL	9.3	470	9.3
Arsenic	7440-38-2	19	5.8 m	3.0	19	9.9	18	9.9	5.7	9.9	19	8.2	7.24	8.2	3.0	8.2
Barium	7440-39-3	59,000	1,640 m	220,000	59,000	283	330	283	1.04	283	59,000	48 a	NL	48	220,000	48
Beryllium	7440-41-7	140	64 m	2,300	140	10	21	10	1.06	10	140	NL	NL	NL	2,300	2,300
Cadmium	7440-43-9	78	7.6 m	980	78	0.36	0.36	4	0.00222	0.36	78	1.2	0.68	1.2	980	1.2
Calcium	7440-70-2	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Chromium	7440-47-3	NL	3,600,000 m	NL	3,600,000	0.4	26 b	0.4	0.4	0.4	3,600,000	81	52.3	81	NL	81
Chromium (hexavalent)	18540-29-9	1	0.0134 r	6.3	1	130	130	NL	NL	130	1	NL	NL	NL	6.3	6.3
Cobalt	7440-48-4	590	5.4 r	350	590	0.14	13	20	0.14	0.14	590	10 a	NL	10	350	10
Copper	7440-50-8	45,000	920 m	47,000	45,000	5.4	28	60	5.4	5.4	45,000	34	18.7	34	47,000	34
Cyanide	57-12-5	680	40 m	150	680	1.33	NL	NL	1.33	1.33	680	NL	NL	NL	150	150
Iron	7439-89-6	NL	7,000 r	820,000	7,000	NL	NL	NL	NL	NL	7,000	NL	NL	NL	820,000	820,000
Lead	7439-92-1	800	280 m	800	800	0.0537	11	40.5	0.0537	0.0537	800	47	30.2	47	800	47
Magnesium	7439-95-4	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Manganese	7439-96-5	5,900	560 r,c	26,000 c	5,900	220	220	NL	NL	220	5,900	260 a	NL	260	26,000	260
Mercury	7439-97-6	65	2 m	46	65	0.00051	NL	0.00051	0.1	0.00051	65	0.15	0.13	0.15	46	0.15
Nickel	7440-02-0	23,000	520 r	22,000	23,000	13.6	38	30	13.6	13.6	23,000	21	15.9	21	22,000	21
Potassium	7440-09-7	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Selenium	7782-49-2	5,700	5 m	5,800	5,700	0.0276	0.52	0.21	0.0276	0.0276	5,700	1 a	NL	1	5,800	1
Silver	7440-22-4	5,700	16 r	5,800	5,700	2	4.2	2	4.04	2	5,700	1	0.73	1	5,800	1
Sodium	7440-23-5	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Thallium	7440-28-0	NL	2.8 m	12	2.8	1	NL	1	0.0569	1	2.8	NL	NL	NL	12	12
Vanadium	7440-62-2	1,100	1,720 r	5,800	1,100	2	7.8	2	1.59	2	1,100	57 a	NL	57	5,800	57
Zinc	7440-66-6	110,000	7,400 r	350,000	110,000	6.62	46	8.5	6.62	6.62	110,000	150	124	150	350,000	150

Notes:

1. Soil criteria were selected in a hierarchical manner arranged as follows:

(a) NJDEP Non-Residential Direct Contact Soil Remediation Standard, Last Amended September 2017 (https://www.nj.gov/dep/rules/rules/njac7_26d.pdf)

Value for hexavalent chromium - Derivation of an Ingestion-Based Soil Remediation Criterion for Cr+6 Based on the NTP Chronic Bioassay Data for Sodium Dichromate Dihydrate. <http://www.state.nj.us/dep/dsr/chromium/ingestion-cr.pdf>. June 2009

(b) EPA Regional Screening Level (RSL) (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower of the RSLs for soil protective of groundwater or industrial soil was selected.

(<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

(b-1) RSL for soil protective of groundwater, based on Maximum Contaminant Level (MCL), where available, and a dilution factor of 20. Otherwise based on the RSL for tapwater (lower of the RSLs for target cancer risk of 1×10^{-6} or target noncancer hazard quotient of 1) and a dilution factor of 20.

m: Maximum Contaminant Level (MCL)-based value

r: risk-based value

(b-2) RSL for industrial soil (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.

(c) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(c-1) NJDEP Ecological Screening Criteria for soil, March 2009 (<http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

NJDEP presents six types of ecological screening criteria for soil; the lowest value among the six was used.

(c-2) EPA Ecological Soil Screening Levels (EcoSSLs). <https://www.epa.gov/chemical-research/interim-ecological-soil-screening-level-documents>

(c-3) Efroyzman, R.A., G.W. Suter II, B.E. Sample, and D.S. Jones. 1997. Preliminary Remediation Goals (PRGs) for Ecological Endpoints.

Prepared for the U.S. Department of Energy, Office of Environmental Management Contract No. DE-AC05-84OR21401.

(c-4) EPA 2003. EPA Region 5 Resource Conservation and Recovery Act (RCRA) Ecological Screening Levels.

2. Sediment criteria were selected in a hierarchical manner arranged as follows:

(a) Ecological screening criteria which were selected in a hierarchical fashion as follows:

(a-1) NJDEP Ecological Screening Criteria: Effects Range Low for saline water sediment, March 2009 (accessed January 2020, <http://www.nj.gov/dep/srp/guidance/ecoscreening/>)

(a-2) EPA Region 3 Biological Technical Assistance Group (BTAG) Marine Sediment Screening Benchmarks, July 2006 (accessed January 2020, https://www.epa.gov/sites/production/files/2015-09/documents/r3_btag_marine_sediment_benchmarks_7-06.pdf)

(b) EPA Human health-based screening – RSL industrial soil values (Target Risk = 1E-06; Target Hazard Quotient = 1), November 2019. The lower value of the RSLs derived from cancer versus noncancer endpoints was selected.

(<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>)

a: NJDEP sediment ecological screening criteria is based on a saline Effects Range Medium value in the absence of an Effects Range Low value.

b: screening value for chromium (trivalent)

c: screening value for manganese (non-diet)

mg/kg - milligram per kilogram

N/A - Not Applicable

NJDEP - New Jersey Department of Environmental Protection

NL - not listed